

Summer (June through August), 2010 Conditional Temperature Forecast for Philadelphia International Airport (PHL)

If the first heat wave occurs	The forecast mean summer temperature is:	67% confidence interval is:	90% confidence interval is:
June 1 – June 15	77.4	76.2 – 78.6	75.4 – 79.4
June 16 – June 30	77.2	76.0 – 78.4	75.2 – 79.2
July 1 – July 15	77.0	75.8 – 78.2	75.0 – 79.0
July 16 – July 31	76.8	75.6 – 78.0	74.8 – 78.7
August 1 – August 15	76.6	75.4 – 77.7	74.6 – 78.5
August 16 – August 31	76.4	75.2 – 77.5	74.4 – 78.3
September 1 – September 15	76.1	75.0 – 77.3	74.2 – 78.1
No heat wave	75.8	74.7 – 77.0	73.9 – 77.8

All forecast values are given in degrees Fahrenheit. The normal summer temperature at PHL is 75.4 degrees. Summer is defined as meteorological summer, i.e., the months of June through August.

The above conditional forecast is from a multiple linear regression equation that was derived from data from 1966 through 2009 that came from PHL. It was found that the combination of the Julian date of the first occurrence of 90 degrees or higher, the Julian date of the first heat wave of the season and the mean April minimum temperature explains approximately 38 percent of the variance in the mean summer temperature.

The technique results in a specific forecast value and associated confidence intervals. So, if the first heat wave of the season begins on June 23, the forecast of the mean summer temperature is 77.2 degrees; there is a 67% chance that the actual mean summer temperature will fall between 76.0 and 78.4 degrees, and there is a 90% chance that the actual mean summer temperature will fall between 75.2 and 79.2 degrees.

A heat wave is defined as at least three consecutive days with maximum temperatures of at least 90 degrees. Based on data going back to 1950, the likelihood of no heat wave occurring during the summer season is approximately 10%.